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until we come to the Feejee Islands in the South Seas, and then they cease. From the Feejee Islands to the coast of America not a negro to be seen. They are found in the island of New Caledonia, which has lately been taken possession of by the French. The New Hebrides and New Ireland are peopled by them; they are generally robust people, totally unlike the people of the Malay peninsula, the Andaman Islands, and the Philippines. Just one word for a name which has been frequently used by European travellers and referred to by Mr. Yeats. *Alfores* is not the name of a people at all: it is only the corruption of a Portuguese word meaning "outside people." It has nothing to do with any particular race of men. We constantly hear of the *Alfores*; it is equivalent to what the Spaniards call the *Indios bravos*—that is, the untamed, uncivilized Indians. With respect to the Negro languages, I dare say there are about 50 different ones. I have myself examined at least a dozen specimens, and no two of them agree. The only agreement among them is that they frequently borrow words from the Malay language.

MR. YEATS, F.R.G.S.—With regard to the last remark, I would venture to say that there are two names given to these same mountaineers: *Alfores* is the common generic term, but the word *Marassi* is also applied to them. Throughout this paper of Dr. Müller one thing has struck me: his statement is singularly clear, and, where argument is resorted to, it is peculiarly conclusive. He has decidedly stated that there are two distinct races, the mountaineers and the people on the coast. While the people on the coast wander about, a nomadic race, the mountaineers are a settled, energetic, hardy set of men, as we should expect them to be. I have lived in Holland between three and four years, long enough to become naturalised, and I have also lived between three and four years in the mountains at the base of the higher Alps. I know well the distinction between mountaineer and lowlander, and the contrasting qualities of the two races are so clearly brought out in this work of Müller, that I have no doubt in my own mind that there are two distinct races, and that the mountaineers will in the end prove the conquering race.

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The second Paper read was—

2. *Latest Communications on Australian Exploration.* By Captain A. H. FREELING, R.E., Surveyor-General, Mr. STEPHEN HACK, and others.

Communicated by the Right Hon. HENRY LABOUCHERE, Colonial Office.

THE communications that have lately been received by the Society relative to South Australia refer to two adjacent regions, the one within the bend of Lake Torrens, and the other lying immediately to the westward of it. As regards the first of these, the results of Eyre's expedition and that of Frome were such as to hold out little or no hope that these regions would ever become available to settlers, yet small watering places have gradually been discovered and cattle stations pushed onward, until in 1856 they had extended up to Mount Serle, and even a short way beyond it, although all knowledge of the country ended at the Mount Hopeless of Mr. Eyre. In August of that year, 1856, a geological expedition was organised, under the joint leadership of Mr. Herschel Babbage and Mr. Bonner,

to explore the Mount Serle district for gold and for coal, and in the course of that exploration Mr. Babbage made a rapid reconnaissance to the northward. After considerable danger and difficulty, owing to the desertion of his native servant and the loss of his horses, he succeeded in reaching and discovering M'Donnell Creek and the large and apparently permanent waters of St. Mary's Pool and Blanche-water, lying on its lower course. Much excitement was caused at Adelaide by the news of this discovery, an account of which was published in the 'Register' newspaper, from which journal it will be sufficient to extract the following remarks, dated November 7, 1856 :—

“ At a distance of not more than six or eight miles from Eyre's track, over what was presumed to be a parched and thirsty country, Mr. Babbage has been fortunate enough to discover a fine sheet of permanent water, a mile long, surrounded by detached pools of permanent water. These result from a fine creek, having its sources full 60 miles higher up, and watering the country through which it passes. We invite renewed attention to this subject, not only because it is due to Mr. Babbage, but because it shows the impropriety of condemning vast tracts of country where no water was found by some traveller, who years ago struck a path across their solitudes. If large sheets of water, fed by a creek 60 miles long, existed in the immediate vicinity of Eyre's track without being discovered or suspected by that enterprising traveller, the same natural features may now exist in other places, though as yet unseen and unknown by white men. We sincerely hope that Mr. Babbage's discovery may prompt bushmen and others to make occasional excursions into those localities, which perhaps on insufficient evidence have been condemned as unproductive. Many districts are now covered with flocks which years ago were denounced as hopelessly sterile.”

Nothing further appears to have been discovered in these regions until Mr. Goyder's expedition in the following year, 1857, an account of which was read before this Society last November, and which is already published in the Proceedings. It will be recollected that Mr. Goyder was the assistant-surveyor sent to triangulate the country north of Mount Serle, and that, after operations were commenced, he took the opportunity of making a general reconnaissance of the districts in which his duties lay. He descended M'Donnell Creek, and recorded his admiration of the abundance of the water in it, and also at Blanche-water. He followed the creek for 16 miles, and then leaving it travelled  $6\frac{1}{2}$  miles to the north-east, and came upon the margin of Lake Torrens. He found the water quite fresh, and an entire absence of marks of higher flood-lines,

and was led to believe that the water was little liable to changes of level. He records the vegetation visible on the northern shores of the lake, and also on several islands in it, whose perpendicular cliffs were clearly discerned by the aid of a telescope. He finally anticipated a time when Lake Torrens should become a *dépôt* for future observers, and a properly constructed ferry-boat placed upon its waters. He, moreover, remarks that it would be perfectly useless to repeat the number of times that he was deceived by mirage and surprised by the enormous refraction peculiar to these plains; that some idea of it may be obtained from the fact that the large gum-trees seen from Weathered Hill to the north proved to be bushes of from two to four feet high, and that a large hill seen from the summit of Mount Serle by the aid of a powerful glass, and which he estimated at 3000 feet, dwindled down to 60.

Consequent upon this report of Mr. Goyder, Captain Freeling, the surveyor-general, set out on an expedition to investigate its truth; he took two boats, and thus states the result:—

“The extensive bays described in Mr. Goyder’s report, the bluff headlands, the several islands between the north and south shores, the vegetation covering them, and their perpendicular cliffs, have all been the result of mirage, and do not in point of fact exist as represented. The conclusion drawn in that report, that the lake is subject only to the most trifling variation of level, is also proved to be an erroneous deduction.”

Captain Freeling arrived at the lake on the 3rd of September. He observed a marked change in the country after leaving Mounts Distance, Gardiner, and Freeling; the ranges merged into hummocky hills, sometimes isolated and standing on an extensive alluvial plain, upon which drift timber was to be seen for miles, and which, by rapidly cracking into fissures under the sun’s heat, gave sufficient evidence that floods took place, that a vast body of water was poured down by the M’Donnell and other streams running northerly after heavy falls of rain, and that the lake, when observed by Mr. Goyder, was merely an accumulation of such flood waters.

Captain Freeling reached the exact spot from which Mr. Goyder saw the lake. He was accompanied by one of Mr. Goyder’s own companions, from whose statement it appeared that the water had already receded half a mile. For six miles back the land was nearly a dead level, and the soil was of the same character as that at the edge of the lake, and it had at times been flooded. The water of the lake was nearly fresh. On walking into it the party sank up to their ankles in mud. The flat-bottomed punt was brought and dragged half a mile across this mud, but there was not even then

enough water to float her. The islands in front certainly seemed to have perpendicular cliffs, but the land just left, and which was a dead level, had exactly the same appearance; the high and distant mountains of the Hopeless range were alone unaffected by the mirage.

The next day a determined endeavour was made by the party to wade through the water and mud, and to reach if possible the opposite shore. The walking was most fatiguing, and actually dangerous, for the mud yielded more deeply as the distance from shore became greater; six inches was the deepest water met with, and that only in patches. Two little islands were visited on the way; they were raised about one foot above the water, and were three miles from the starting point. Some of the party pushed on still farther, almost beyond the limits of their strength, for one of them was barely able to return. The whole party were fully satisfied of the utterly impracticable nature of the water for navigation.

"Neither is there any hope of a more fortunate result being obtained elsewhere; the whole character of the country bordering the lake, which is of the most desolate nature, and at present unfit even for stocking, being the same wherever it is reached.

"Mr. Eyre when visiting the eastern side of the west wing of the lake, Captain Sturt when reaching the same lake on its eastern side, and Captain Frome when reaching it on the western side of the east wing, all agree in their description of Lake Torrens; and their description would apply at this point, were it not for the freshness of the water. Where it differs from their description is here in the freshness of the water. This may be accounted for by the heavy floods in March, and the immense body of fresh water then poured down, still influencing the lake so as to freshen its water; but more probably the water visited by us is not the saltwater lake, although immediately contiguous to it, but the remains of the winter floods retained in a large, slightly hollowed basin, with a clayey bottom, but now rapidly evaporating under the sun's rays. Were this the case, the same extent of hopeless plains would reach from the neighbourhood of Blanche-water to the lake that has been found on the eastern and western plains."

No remarks are made in Captain Freeling's report on the appearance of Blanche-water and the adjacent pools, or on the permanency of their waters.

Mr. Goyder offered his services to explore the district in question more fully, and to ascertain the connection, if any, between the eastern and western wings of Lake Torrens, and to explore a route to the north-west between them; but, on his proposal being submitted to Captain Freeling, it was judged that no doubt existed but that

these two wings were connected, and that the general shape of the lake resembled a horseshoe, and therefore Mr. Goyder's offer was not accepted. This completes the information that has reached us about this region. Its triangulation was expected to have been completed by the end of the season as far as Weathered Hill.

As regards the districts to the west of Lake Torrens, larger tracts have been explored. In May, 1857, an expedition was sent out under Mr. Hack \* to explore the north-western interior of the province, starting on a northerly course from Streaky Bay. The stores were conveyed by ship, and the horses landed at Port Lincoln, whence there is a line of numerous watering-places—one in about every ten miles—to Streaky Bay. Major Warburton was occupied at the same time in making an independent exploration. His routes are laid down upon the diagram, and are taken from the maps accompanying Mr. Hack's report, but no narrative of his expedition has yet been received by our Society. During their absence a third party, consisting of Messrs. Thompson, Campbell, and Swinden, made a rapid tour of about 200 miles to the westward of Lake Torrens, and starting from Saltia. Their route does not, however, admit of being laid down with any accuracy; but it is evident that the land they traversed was very far from being a desert, and that they discovered an isthmus of a quarter of a mile in breadth between the southern extremity of Lake Torrens and the head of Spencer's Gulf. †

To recur to Mr. Hack's exploration. After leaving Streaky Bay he encamped at Parla, on the top of a low range commanding an extensive view of the Gawler range, where the expedition is delayed by the illness of one of his most useful servants. He occupies the vacant time by starting with one pack-horse on a reconnaissance, steering for a gap in the range distinctly visible from Parla. On nearing it, he passed through twelve miles of dense scrub, then through a chain of salt lakes difficult to pass, and which was seen from Mount Centre extending to the north-west as far as the eye could reach, while to the north there was a mass of high ranges, one behind another, till they faded away in the distance. On the return journey to Parla, Major Warburton's fresh tracks were crossed; good, permanent limestone wells were found, and the country observed to consist of a considerable extent of fine grassy land running into bold bald downs, intersected with belts and patches of mallee scrub of various extent.

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\* South Australia, No. 156. Explorations by Mr. S. Hack. Ordered by the House of Assembly to be printed Oct. 13th, 1857.

† Sir George Grey, when Governor, traversed and made a plan of this isthmus.—ED.

He again started, but was again delayed by the continued illness of the same servant whom he was obliged to send back to the coast, and finally left Yarwandutta on the 21st of July. At Warroona there is permanent water in a creek; and in every direction, limited only by the scrub to the southward, the view from the hills extends over good grass and salt bush. The salt lakes still continued, but trended farther away from the range. About 25 miles to the north was a large range with a similar line of salt lakes under it. It seemed to be a feature of this country that the drainage of the hills was received by these salt lakes.

Round Toondulya there was grass country in all directions, and a fine permanent spring. Hearing from the black that there was only one more permanent water on this course, at Yarlbinda, he rode there, and found the features of the country to continue the same along the route, and ten miles onward to a detached hill to the north-west, but no other mountains were visible to the north or north-west, and the black guides asserted that there was no water for horses for a very long distance in that direction. Very far off is a country called Naralla, but on this course horses cannot be taken there. As viewed from the highest hill of Yarlbinda, the distant country appeared a level sea of scrub, without a hill or rise of any sort to indicate the existence of water in one place more than another. Mr. Hack felt that he might have gone as far into this scrub as the horses could have lasted without water, and then have returned to Yarlbinda; but such a course would have knocked the horses up, and crippled the future operations of the expedition; and he considered that the letter of his instructions should be departed from, and a practicable route sought out in another direction. The guide recommended that the party should go ten stages to the eastward, to a great salt lake, whence probably an opening would be found to the north. Reports were heard of several permanent waters and good country to the southward, but these were left for future examination, and Mr. Hack adopted the advice of his guide. Shortly after leaving Yarlbinda he passed through second-rate salt-bush country, and then through large alternate tracts of scrub, grass, and again scrub, to Murnea, whence he obtains a fair view of the Great Salt Lake, and again comes upon Major Warburton's tracks. To the north, from the highest hill near, nothing could be seen but a perfect horizon of salt; thence, until arriving at Yardea, the country is of variable goodness, and much of it is bad, but at Yardea itself it is excellent. In country of this description, that is to say, where sometimes there is excellent grass, and sometimes scrub, but with frequent watering-places, many of which

appeared permanent, and all of which are recorded in detail in the report, he travels along the line shown in the map. Freeling Range appeared to be in the middle of good grass country, and a very large spring is reported by the natives to be in its neighbourhood. Grass was found to be growing to the very edge of the Salt Lake. From near Pagan Creek, which promises well as a permanent watering-place, the range begins to break off, and to run out into low hills towards Baxter Range. The horses had become so footsore that it was now a difficult task to examine the country properly, and there was no permanent water found between these last-named places. Mr. Hack spent several days in exploring this part, as he was very anxious to get a good route for stock into the new country he had found; but at present a gap is left of some sixty-five to seventy miles without any known summer water.

He feels assured, from native accounts, of the existence of a very extensive tract of well-watered country to the north, in which herds of wild cattle are reported to exist, but thinks there may be considerable difficulty in finding a good road to it without the assistance of black guides.—F. G.

[The Government of South Australia have taken steps to pursue these discoveries by sending out an expedition, under the command of Mr. Babbage, to explore and survey the whole country between Lakes Gairdner and Torrens. The party is provisioned for eighteen months, and consists of Mr. Babbage as leader, Mr. Surveyor Harris as second in command, with 7 men, 3 drays, 1 tank cart, 16 horses, and 180 sheep. They proceed by steamer to the head of Spencer's Gulf, and will commence their travelling as early as the season will permit them.]

The PRESIDENT.—We thank the authorities for this communication, and also Mr. Galton for the abstract. Some of the papers have been partially printed by the local Legislature of South Australia, of which this is a very well condensed and perspicuous abstract.

COLONEL GAWLER, F.R.G.S.—I have seen in the Adelaide newspapers summaries of the information Mr. Galton has been so good as to read to us. I have looked over them with very close attention, and have been so deeply impressed with their importance that I have had extracts from them struck off, not knowing the subject would be brought on here, with the intention of laying them on the table. First of all, with regard to Captain Freeling's elucidation or comment on Mr. Goyder's expedition, it seems to me that the good people of Adelaide are right in saying that if Captain Freeling had gone out just after the autumnal rains, when Mr. Goyder was there, and that if Mr. Goyder had gone, as Captain Freeling did, after three months' drought, that each would have seen the very reverse of what they now described. On the very plains of Adelaide, if a stranger were to come there just after the rains, he would have seen, as the early colonists did, a beautiful grassy country, and have been delighted to form a settlement there; but if he were to come after three months' summer heat, he would have said it is a bare brickfield, not worth the trouble of occupying. Such is the character of the land in South



Australia, and such, I take it, is the character of the land which Mr. Goyder and Captain Freeling saw near Lake Torrens. The water in the lake must be acted upon by the same circumstances. After the autumnal rains the fresh water would be abundant, as the fresh water in the Torrens river at Adelaide is abundant; and after three months' drought the lake will be almost dry, the same as the river at Adelaide is. This being the character of the country, I am sure that Captain Freeling's account does not sweep away Mr. Goyder's. The people in Adelaide say, and I think every one who has been in South Australia will say, that you must take the medium between the two. There is good land, but it must be occupied and turned to advantage. That brick-field-looking land at Adelaide, which is so burned up after a drought, is the finest corn country in the world. I doubt not there is profitable land near Lake Torrens, and that there exists some marvellous phenomenon which fills that lake with such an abundance of fresh water, coming down probably by Captain Sturt's enormous watercourse, thirty miles wide.

However, that is not the great point at issue: whether there is to the westward of Lake Torrens a way into the interior—that is the great point with which we have to do. I have always strongly had the impression that there is a way, and this is my great reason for thinking so: When, in Adelaide, the wind went round from the north to the east, the sky became lurid and dry and parched, and those hot winds came of which we have heard so much in Australia. When the wind began to go to the westward of north, it became cloudy and cool and moist. By careful inquiry, I found the same was experienced by the settlers in the Port Lincoln peninsula: they never knew of a hot wind from the north. The people of Adelaide never knew of a hot wind from the north-west; and Mr. Eyre, when he went into the region to the westward of the Port Lincoln peninsula, speaks of the N.E. wind coming from the north of Port Lincoln as never being anything but moist and cloudy (Vol. i. 343; ii. 140 and 143); whereas a little farther to the eastward the wind was always terribly hot. This wind came from that desert to the east of Lake Torrens, in which Sturt's thermometer blew up—a desert on which, long before he went there, I had put a cross, and said, "A burning desert, the source of the hot winds at Sydney and at Adelaide." My conclusion having come out so clearly as regards the eastward, I fully expect that with respect to the westward will be equally borne out by the result, and that there will be found—as has recently begun to be found by Mr. Hack, Mr. Swindon, and others, a well-watered country to the westward of Lake Torrens and to the northward of the Port Lincoln peninsula. I think we have sober reason for expecting that that good and well-watered country will be found to be formed by a great drainage coming down from the north and west into Lake Torrens, fed by the evaporation of the Southern Ocean continually blown upon it, and by the tropical rains from the north. I was so anxious that Mr. Eyre should take that direction that I pressed him almost unreasonably to it; but his heart, rendered hopeless by Lake Torrens, was then set on the Swan River, and he took that ever-memorable tremendous journey—a journey which I believe will yet produce great results. I am delighted that the South Australians have taken up the matter in really good earnest. So convinced were they by the reports that came from Mr. Swindon and Mr. Thomson and others, that the run upon the Government Land Office for leases in that direction was so great that the Government got alarmed and stopped issues. They have now begun again, and there can be no doubt at all that there is a large quantity of good land in that direction.

There is another point upon which Mr. Hack speaks steadily, and that is that the natives assert that between Lake Gairdner and Lake Torrens there is a route into the great interior. That is a point likewise of immense importance to us. Any one who will look over Mr. Eyre's travels will perceive that

he came to the same conclusion. His opinion was that the natives came down originally from the north coast in three columns; the first by the west coast, the next by the east coast, and the third down the centre to the westward of Lake Torrens. He believes strongly the country was occupied in that way, and, therefore, that there must be a line of route through the interior.

Now, what a deeply-important political and geographical feature that is to search out! Politically, it brings the rich south-eastern provinces into communication with North Australia, and with the magnificent islands of the Indian Archipelago. By such a route it would be possible to establish electric communication with England, if we chose to lay the line. I do not know whether the Society is aware that an expedition has been formed under Mr. Babbage, and that he has probably already set out for the interior, well prepared with provisions for eighteen months, and with apparatus for distilling water. I consider this expedition of immense importance to all who are interested in the geography of Australia, and that we may at least begin to think about getting up a line of railway from Stokes's Victoria River to the south-western point of Lake Torrens.

The PRESIDENT.—We are much obliged to Colonel Gawler. It is seldom we have persons present so much experienced in Australian geography; and if his view should be borne out, I shall be happy to modify the views which I have ventured to broach theoretically respecting the great interior of that country. I beg to submit to Colonel Gawler that the experience of Mr. Gregory on the north certainly led us to expect that the country towards the interior became so saline that it would be worthless, and useless to try to penetrate it; whilst all our experience upon the west has tended in that direction. Up the Shark river, and to the river that bears my name, the country is so saline that nobody can settle upon it. I am afraid my friend Mr. Arrowsmith's name is not in a better position than my own. His river passes altogether through saline marshes.

[illegible]

*Pub.<sup>d</sup> for the Proceedings of the Royal Geographical Society, London 1858.*



